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THE PREVENTION AND THE NATURAL HISTORY OF DISEASE

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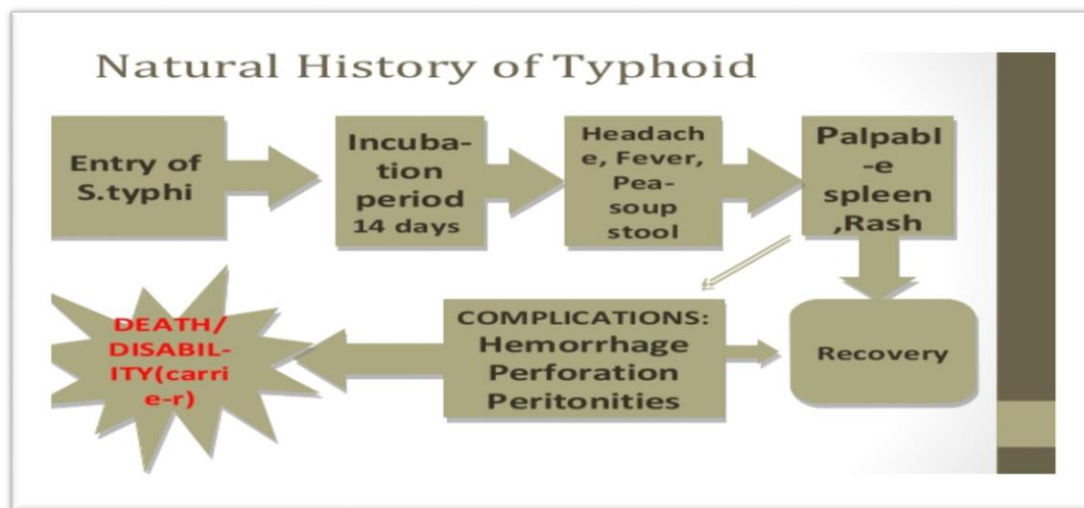
The prevention and natural history of disease

Definition of natural history of a disease.

Signifies the way in which a disease evolves over time from the earliest stage its prepathogenesis phase to its termination as recover, disability or death, in the absence of treatment or prevention.

-The process begins with exposure to or accumulation of factors capable of causing disease. Without medical intervention, the process ends with -

- Recovery,
- Disability,
- or death.



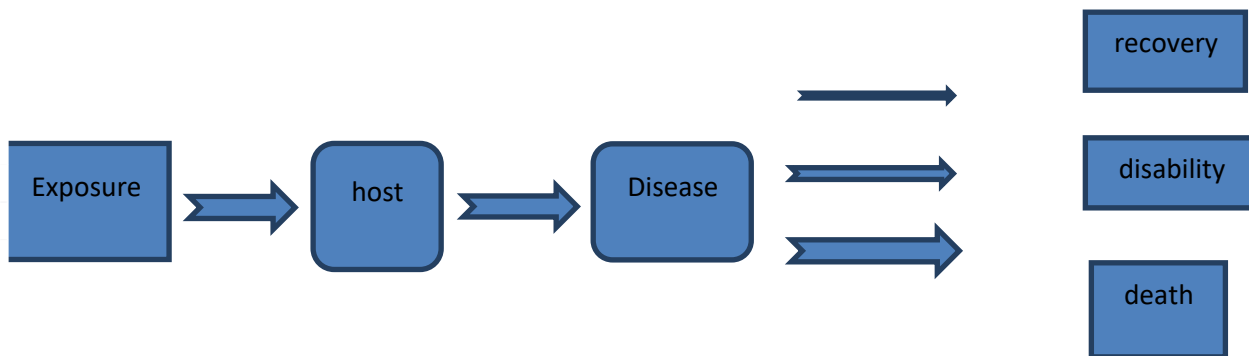
Natural history of disease is one of the major elements of descriptive epidemiology. Any disease results from a complex interaction between host, agent, and environment.

Understanding the progress of disease process and its pathogenetic chain of events is must for the application of preventive measures.

The natural history of health condition is adscription of the events that precedes the development of health conditions, and during its occurrence through the course of development, as well as its outcome.

OR

It refers to adscription of the uninterrupted progression of a health problem in an individual from the moment of exposure to causal agents until recovery or death.



The natural history of disease is divided in to three stages:

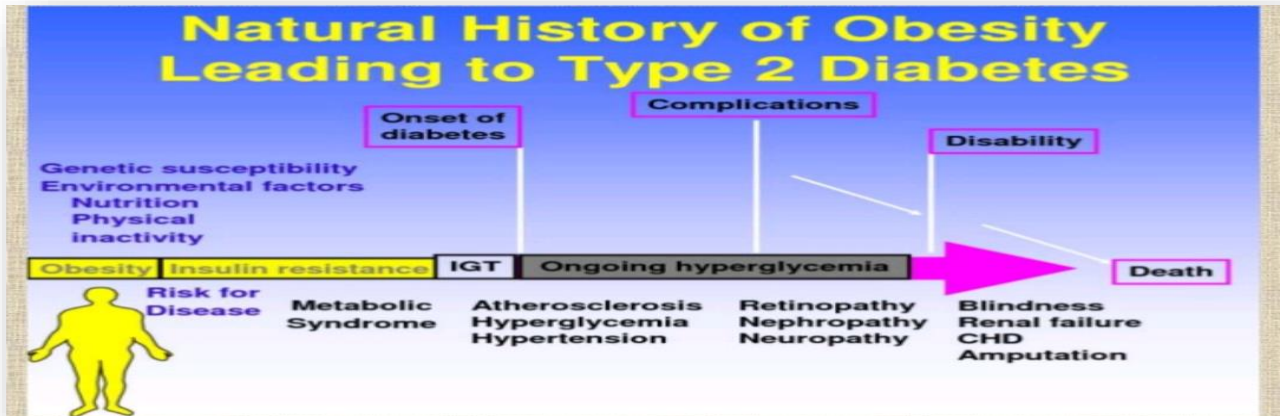
1. pre-pathogenesis stage/stage of susceptibility:-

This refers to the period preliminary to the onset of disease in host. The disease agent has not yet entered host, but the factors which favor its interaction with the human host are already existing in the environment. In this stage ,the disease has not developed but the ground has been laid by the presence of factors that favor its occurrence, for e.g.:-

- a-Alcohol consumption for: **cirrhosis of liver**
- b-High cholesterol, obesity: **Heart disease**
- c-Smoking , hypertension, high cholesterol :**stroke**
- d-Radiation, smoking, immune suppression: **cancer**

2. pathogenesis stage : period of time in which the agent interferes with the host in the environment. The pathogenesis phase begins with the entry of the disease “agent” in the susceptible human host. The disease agent multiplies and induces tissue and physiological changes, the disease progresses through a period of incubation and later through the period of early and late pathogenesis.

3- post pathogenesis: the period in which the host culminate his condition in return to health, or continues of chronic condition and or death.

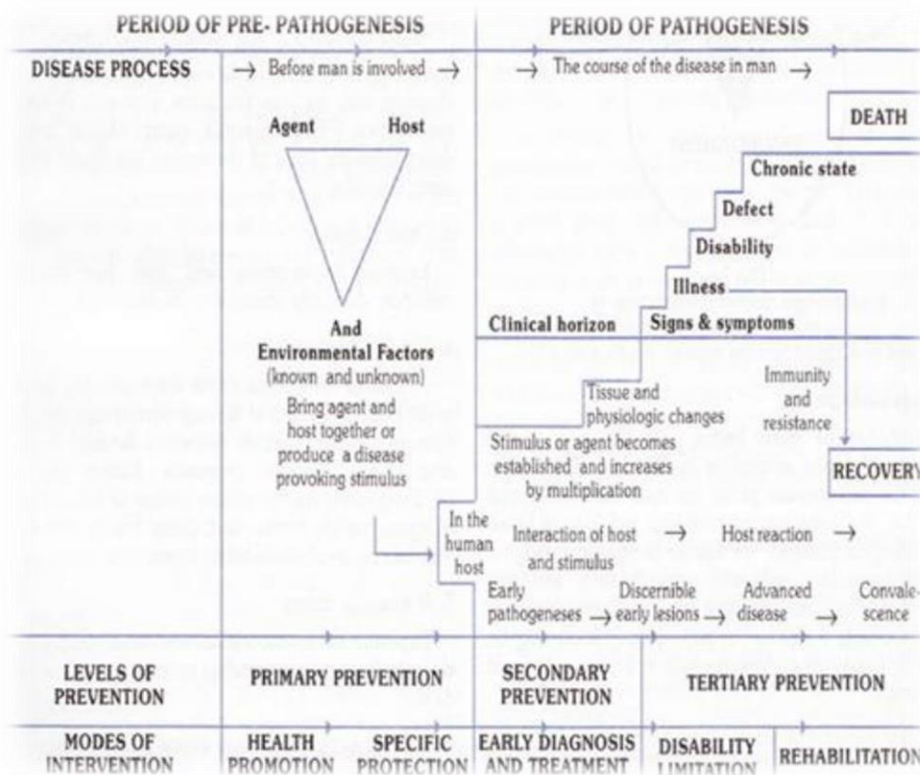


Why is it important to study natural history of disease /?

- 1-For planning preventive activities
- 2-Adjusting lead time and length bias for proper implementation of screening program
- 3-Forecasting prognosis
- 4-Evaluation of intervention

Prevention:

It is the process through which preventive measures and strategies of control can be implemented for the sake of health promotion and diseases prevention.



Levels of prevention are:

1. primordial prevention :-

It is the prevention of the emergence or development of risk factors in population groups in which they have not yet appeared.

-For example, many adult health problems (e.g, obesity and hypertension) have their early origin in childhood , so efforts are directed towards encouraging children to adopt healthy lifestyles (e,g. physical exercise , healthy dietary habits ect...)

-The main intervention in primordial prevention is through individual and mass education.

2. primary prevention:-

It can be defined as action taken prior to the onset of disease, which removes the possibility that a disease will ever occur. It signifies intervention in the pre-pathogenesis phase of a disease.

*for example ,by promoting breast feeding among children ,we try to prevent general malnutrition ,vitamin A deficiency ,providing antibodies against various disease ,preventing diarrhea disease.

-Two types of strategies:-

1-population (mass) strategy

2-High risk strategy

***population strategy :-**

1-directed at whole population irrespective of the individual risk levels

2-directed towards socio-economic , behavioral and lifestyle changes

*** High risk strategy**

Includes identification of "High risk groups" in the population and bring preventive care to these risk group. -e.g., people having the family history of Hypertension , Diabetes

Two types of modes of intervention :--

1-Health promotion

2-specific protection

Health promotion:- it is the process of enabling people to increase control over, and to improve health.

1-health education:-most cost effective intervention .now people have moved to behavior change communication. e.g.:-personal hygiene, sex education.

2-Nutritional interventions:-food fortification , infant feeding program etc..

3-Life style and behavioral changes:-physical exercise, prevention of smoking and alcoholism ,fatty diet.

4-Environmental modifications;-e.g.:-provision of safe water , control of insects...

***Specific protective measures :- e.g.:~**

1-Immunization.

2-Immune-prophylaxis.

3-Protection from accidents e.g., use of helmets.

4-Protection against occupational hazards.

5-Avoidance of allergens .

3.Secondary prevention:-

preventive measures occur during the stage of disease or reduce its duration or severity.

*these include all actions undertaken at the stage of early pathogenesis (asymptomatic disease) with a view to halt the progress of disease at it's earliest, incipient stage ,by "early diagnosis and promote treatment".

*classical example is "screening for disease " for breast cancer (using mammography) and cervical cancer (using pap smear).

*medical examinations of school children ,of industrial workers and various disease screening camps.

Screening survey

The organized attempt to detect disease in an unsuspected population. It is not usually diagnostic and it requires appropriate investigative follow up and treatment.

4.Tertiary prevention:-

These include all measures undertaken when the disease has become clinically manifest or advanced ,with a view to prevent or delay death, reduce or limit the impairments and disabilities ,minimize suffering and to promote the subject's adjustment to irremediable conditions

***Tertiary prevention has two types of approaches:-**

1-Disability limitation

2-Rehabilitation.

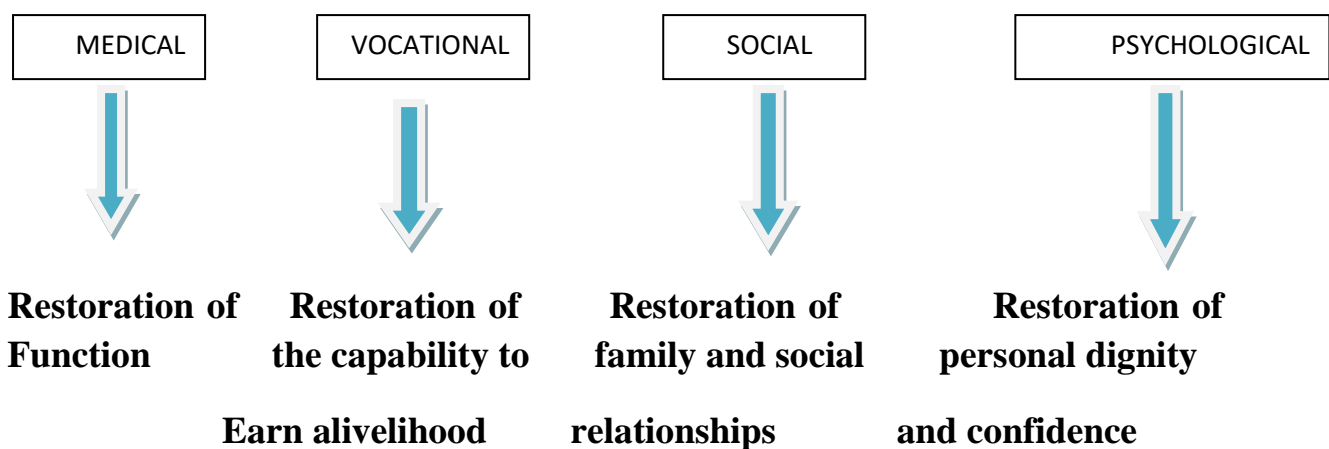
DISABILITY LIMITATION:-

These include all measures to prevent the occurrence of further complications, impairments ,disabilities and handicaps or event death. E.g;-
-complete rest ,morphine, oxygen and streptokinase is given to a patient of Acute MI ,to prevent death or complications like arrhythmias/CHF.

-Application of plaster cast to a patient who has suffered colle's fracture, is done to prevent complications and further disability like mal-union or non-union .

****REHABILITATION:-**

It is defined as the combined and coordinated use of medical, social, educational and vocational measures for training and retraining the individual to the highest possible level of functional ability.



Examples of Rehabilitation are:-

1-Establishing schools for blinds.

2-Provision of aids for the crippled,such as artifical limp,crutches, wheel chair,hearing aid etc.

3-Reconstructive surgery in leprosy.

4-Muscle re-education and graded exercises in neurological disorders .

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